# Gianluca Galletti

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**PROFILE**

I'm a last year Informatics Master student at TU Munich, working on Graph Neural Networks and Equivariance for particle fluid problems. Previously, I took part of various projects involving Reinforcement Learning, Process Mining, Computer Vision and Autonomous Driving.

**EDUCATION**

**Technische Universität München**                        Oct 2021 – April 2024 (expected)
*Munich, Germany*
  MSc in Informatics

**Alma Mater Studiorum**                        Sep 2018 – Oct 2021
*Bologna, Italy*
  BSc in Computer science – *Graduated with Honors*
  Thesis: *The pyTORCS Environment for Deep Reinforcement Learning*
  Supervisor: Prof. *Andrea Asperti*

**EXPERIENCE**

*Research assistant –* **TUM**                        Oct 2022 - Sep 2023
*Munich, Germany*
  ▷ Chair of Aerodynamics and Fluid Mechanics, supervised by Artur Toshev.
  ▷ Particle fluid problems with machine learning (GNNs).
  ▷ Resulted in two accepted publications (GSI and NeurIPS D&B).

*Working student –* **Celonis**                        Dec 2021 - Feb 2023
*Munich, Germany*
  ▷ Part of the *CeloAI prognostics* team.
  ▷ Worked on process model extraction and simulation (DES).
  ▷ Developed and maintained a codebase released to production.

*Head of Driverless division –* **Unibo Motorsport**                        Nov 2020 – Sep 2021
*Bologna, Italy*
  ▷ Initiated the ongoing *UBMDriverless* project.
  ▷ Race simulation and computer vision (SLAM).
  ▷ Still occasionally partake in technical discussions and organization.

**PAPERS**

*LagrangeBench: A Lagrangian Fluid Mechanics Benchmarking Suite* (paper, code)
 **G Galletti**, A Toshev, et al.
 NeurIPS 2023 Datasets and Benchmarks Track

*Learning Lagrangian Fluid Mechanics with E(3)-Equivariant GNN* (paper, code).
 A Toshev, **G Galletti**, J Brandstetter et al.
 Geometric Science of Information 2023 (oral)

**PROJECTS**

***Equivariant jax***, [segnn-jax, painn-jax, egnn-jax]
JAX implementation of some popular equivariant models.

***pyTORCS***, on github
Container-based TORCS environment/interface for reinforcement learning developed in Python, following the OpenAI Gym API style. TORCS is an open-source racing game. Part of my BSc thesis.

***UBMSim***
A modular ROS simulation environment for the Formula SAE Driverless competitions.

**SKILLS**

***Languages:*** Python, C++. Also English (fluent), German (basic) and Italian (native)
***Technologies:*** JAX, Torch, Docker, ROS, Tensorflow
***Embedded:*** ARM / STM32, LabView

**PERSONAL**

I have been practicing Traditional Archery for 5 years. I also enjoy Hiking, and sometimes Climbing.